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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/772,719 | 02/05/2004 | Daniel R. Bell III | 038190/274031 | 5609 |
| 826 | 7590 | 05/09/2007 | EXAMINER | |
| ALSTON & BIRD LLP | | | MCNALLY, DANIEL | |
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| 101 SOUTH TRYON STREET, SUITE 4000 | | | 1733 | |
| CHARLOTTE, NC 28280-4000 | | | | |

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| MAIL DATE | DELIVERY MODE |
| 05/09/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|----------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/772,719 | BELL ET AL. |
| | Examiner Daniel McNally | Art Unit 1733 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 08 March 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
 - 4a) Of the above claim(s) 1-5 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 6-10 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office action is a response to the amendment filed 3/8/2007.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 7 requires needling a poly(1,3-phenylene isophthalamide) felt layer to the IML surface of a separately formed first felt layer, wherein the first felt layer comprises a combination of poly(1,3-phenylene isophthalamide) fibers and polybenzazole fibers. The examiner is considering the first felt layer to be formed by needling together separately formed polybenzazole and poly(1,3-phenylene isophthalamide) felt layers. The specification does not provide support for needling a poly(1,3-phenylene isophthalamide) felt layer to a separately formed combination felt layer comprising poly(1,3-phenylene isophthalamide) fibers and polybenzazole fibers, rather the specification provides support for needling a poly(1,3-phenylene isophthalamide) felt layer to a separately formed polybenzazole felt layer.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 6, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kourtides et al. (previously cited) in view of Sawko (previously cited), Kitagawa et al. (previously cited) and Dotts et al. (previously cited).

Kourtides et al. discloses surface insulation comprising of insulation material 14 or "first felt layer", ceramic fabric 13 and protective coating 12 (column 11, lines 23-35). Figure 3 shows the ceramic fabric affixed to the outer surface of the insulation or "first felt" and a protective coating, comprising ceramic material (column 3, line 67- column 4, line 7), applied to the ceramic fabric.

Kourtides does not disclose the insulation comprising polybenzazole (PBZ) fibers needled into a felt layer. Kitagawa discloses a method of producing a heat-resistant felt by needle punching PBZ into a felt (paragraph 0086). Note Kitagawa suggests an application of the felt as rocket insulation (paragraph 0089). The insulation of Kitagawa has a low water absorbency.

Kourtides discloses the insulation layer as a composite insulation (column 1, lines 23-26). A composite insulation contains at least two different materials. Kourtides also discloses a fabric or "felt," stitched or "needled," to the inner surface of the insulation. One of ordinary skill in the art would have appreciated stitching different insulating felts together to produce a composite insulating felt. Dotts et al. discloses needling Nomex or "poly(1,3-phenylene isophthalamide)" fibers into a high temperature

resistant felt (column 3, lines 61-65). Note Dotts uses the Nomex felt as a layer of insulating felt. Both PBZ and Nomex are known to be insulative materials.

Kourtides discloses a fabric or "felt," stitched or "needled," to the inner surface of the insulation. If the Nomex was stitched or needled to the inner surface of the PBZ the inner surface of the composite insulation would comprise a higher density of Nomex fibers than the outer surface of the PBZ felt.

Kourtides does not refer to the outer and inner surfaces of the insulation as the outer mold line (OML) and inner mold line (IML) surfaces. Sawko discloses a surface insulation comprising a batting or insulation having an OML and IML as shown in Figure 1(page 52). Note, Sawko discloses an OML fabric located on the OML surface

It would have been obvious to one of ordinary skill in the art at the time of invention to use PBZ material, that is needled into a felt, in the insulation of Kourtides as taught by Kitagawa in order to produce a surface insulation with a low water absorbency, and to use a Nomex fibers needled into a felt in the insulation of Kourtides as taught by Dotts in order to provide a high temperature resistant felt, and to create the composite insulation of Kourtides by stitching or needling the PBZ felt to the Nomex felt in order to create an insulation that has a low water absorbency and high temperature resistance as taught by Kitagawa and Dotts, and to identify the outer and inner surfaces of Kourtides' insulation as OML and IML surfaces in light of the teachings of Sawko.

With regard to claim 8, Sawko discloses the OML fabric as attached to the batting or "felt layer" by OML thread. One of ordinary skill in the art would know that

threading, stitching or needling would cause the fibers of the fabric and batting to entangle.

With regard to claim 10, Kourtides discloses applying the protective coating to the flexible ceramic fabric, which is affixed to the insulation as an outer cover (column 9, lines 35-50).

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kourtides et al. (previously cited) in view of Sawko (previously cited), Kitagawa et al. (previously cited) and Dotts et al. (previously cited), and further in view of Heim (previously cited).

Kourtides, as modified, discloses a method of fabricating surface insulation as discussed above. The applicant is referred to paragraph 5 for a detailed discussion of Kourtides as modified. Kourtides does not disclose applying the ceramic coating to the ceramic fabric prior to affixing the fabric to the insulation.

Heim discloses a method of making a composite insulation material comprising the steps of applying a coating to a basic fabric or "ceramic fabric" followed by sewing or "affixing" the coated fabric to the lower portion of the garment or "first felt layer" (column 3, lines 18-37).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the process of Kourtides, as modified, by applying the coating before affixing the fabric to the felt as taught by Heim in order to enable entangling of fibers from felt and fabric with the protective coating.

Response to Arguments

7. Applicant's arguments filed 3/8/2007 have been fully considered but they are not persuasive.

The applicant has support for Claim 6 in Figure 3 where separate felt layers of PBZ fibers and poly(1,3-phenylene isophthalamide) fibers are needled together to form a combination felt layer. The examiner considers the "first felt layer" to be said combination felt layer. By needling a poly(1,3-phenylene isophthalamide) felt layer to a PBZ felt layer to form combination felt layer or "first felt layer" it is inherent that the OML region will have a higher percentage of PBZ fibers than the IML region. The applicant does not support needling any further layers onto the combined felt layer or "first felt layer" of Claim 6.

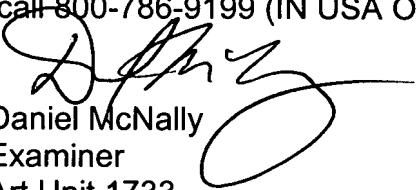
The applicant argues that none of previously cited Kourtides, Sawko, Kitagawa, Dotts or Hein disclose or suggest a method of fabricating an insulation having a felt layer comprising PBZ fibers and poly(1,3-phenylene isophthalamide) fibers wherein the felt has a higher percentage of PBZ fibers in the region adjacent to the OML surface than the region adjacent the IML surface of the felt. The combined teachings of Kourtides, Sawko, Kitagawa and Dotts teach needling separate felts of PBZ and poly(1,3-phenylene isophthalamide) and needling the separate felts together to form a composite insulation. The composite felt will have a higher density of PBZ fibers on one surface and a higher density of poly(1,3-phenylene isophthalamide) fibers on the other surface because the insulation was needled together from separate felts.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel McNally whose telephone number is (571) 272-2685. The examiner can normally be reached on Monday - Friday 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Daniel McNally
Examiner
Art Unit 1733


JEFF H. AFTERGUT
PRIMARY EXAMINER
GROUP 1300

dpm
May 1, 2007